

The main objective of this in class is to create commands for Hadoop Dependent Column based No SQL Tool -HBase.

Created 5 tables for the below cases

- a. Use Case 1: Locations
- b. Use Case 2: Student Courses
- c. Use Case 3: User –Action
- d. Use Case 4: User –Friends
- e. Use Case 5: Access Log

Below are the commands followed for the execution

USECASE-1

Creating a table with name UC1 and adding a column family Location which contains country, state and city columns

```
> create 'UC1', 'Locations'
```

```
> put 'UC1', '1', 'Locations:country', 'India'
> put 'UC1', '1', 'Locations:state', 'Telangana'
> put 'UC1', '1', 'Locations:City', 'Hyderabad'
> put 'UC1', '2', 'Locations:country', 'USA'
> put 'UC1', '2', 'Locations:state', 'Missouri'
> put 'UC1', '2', 'Locations:City', 'Kansas City'
> put 'UC1', '3', 'Locations:country', 'China'
> put 'UC1', '3', 'Locations:state', 'Shejdan'
> put 'UC1', '3', 'Locations:City', 'Hong Kong'
> put 'UC1', '3', 'Locations:country', 'China'
> put 'UC1', '3', 'Locations:state', 'Shejdan'
> put 'UC1', '3', 'Locations:City', 'Juipan'
```

```
scan 'UC1'
describe 'UC1'
count 'UC1'
get 'UC1','1'
```

Output Screenshots:

```
sridevi@sridevi-VirtualBox:~$ hbase(main):006:0> put 'Table01', '2', 'Location:country', 'USA'
0 row(s) in 0.0240 seconds

hbase(main):007:0> put 'Table01', '2', 'Location:state', 'Missouri'
0 row(s) in 0.0320 seconds

hbase(main):008:0> put 'Table01', '2', 'Location:City', 'Kansas City'
0 row(s) in 0.0340 seconds

hbase(main):009:0> put 'Table01', '3', 'Location:country', 'India'
0 row(s) in 0.0160 seconds

hbase(main):010:0> put 'Table01', '3', 'Location:state', 'Andhra Pradesh'
0 row(s) in 0.0380 seconds

hbase(main):011:0> put 'Table01', '3', 'Location:City', 'Hyderabad'
0 row(s) in 0.0370 seconds

hbase(main):012:0> scan 'Table01'
ROW
1      COLUMN=Location:City, timestamp=1529264887665, value=Kansas City
1      COLUMN=Location:country, timestamp=1529264847778, value=USA
1      COLUMN=Location:state, timestamp=1529264865388, value=Kansas
2      COLUMN=Location:City, timestamp=1529264923952, value=Kansas City
2      COLUMN=Location:country, timestamp=1529264899154, value=USA
2      COLUMN=Location:state, timestamp=1529264910966, value=Missouri
3      COLUMN=Location:City, timestamp=1529264975470, value=Hyderabad
3      COLUMN=Location:country, timestamp=1529264935300, value=India
3      COLUMN=Location:state, timestamp=1529264953297, value=Andhra Pradesh
3 row(s) in 0.2150 seconds

hbase(main):013:0> describe 'Table01'
DESCRIPTION
Table01, (NAME => 'Location', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE', VERSIONS => '3', IN_MEMORY => 'false', KEEP_DELETE true
0 CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESSION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE => '
true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0')
1 row(s) in 0.1010 seconds

hbase(main):014:0> count 'Table01'
3 row(s) in 0.1250 seconds

hbase(main):015:0> get 'Table01','1'
COLUMN
Location:City      timestamp=1529264887665, value=Kansas City
Location:country   timestamp=1529264847778, value=USA
Location:state     timestamp=1529264865388, value=Kansas
3 row(s) in 0.0630 seconds

hbase(main):016:0>
```

USECASE-2

Creating a table with name UC2 and adding a column family Student and Courses which contains Student details and courses enrolled by each student

> create 'UC2','Students','Courses'

> put 'UC2', '1', 'Students:Name', 'Walter'

> put 'UC2', '1', 'Students:SEX', 'Male'

> put 'UC2', '1', 'Students:AGE', '24'

> put 'UC2', '2', 'Students:Name', 'Pranoop'

> put 'UC2', '2', 'Students:SEX', 'Male'

> put 'UC2', '2', 'Students:AGE', '20'

> put 'UC2', '3', 'Students:Name', 'Vinay'

> put 'UC2', '3', 'Students:SEX', 'Male'

> put 'UC2', '3', 'Students:AGE', '23'

```

put 'UC2', '1', 'Courses: Course1','ISL'
put 'UC2', '1', 'Courses: Course2', 'Big Data'
put 'UC2', '2', 'Courses: Course1','Python'
put 'UC2', '2', 'Courses: Course2', 'ASE'
put 'UC2', '3', 'Courses: Course1','Big Data'
put 'UC2', '3', 'Courses: Course2', 'ISL'

```

```

scan 'UC2'
describe 'UC2'
count 'UC2'
get 'UC2','2'

```

Creating a table with name UC2b and adding a column family CourseInfo and Student which contains Course details and Students enrolled in each course

```

> create 'UC2b','CourseInfo','Students'

> put 'UC2b', '1', 'CourseInfo: Title', 'ISL'
> put 'UC2b', '1', 'CourseInfo: Intro', 'Statistical Learning'
> put 'UC2b', '1', 'CourseInfo: Teacher', 'Deep Medhi'
> put 'UC2b', '2', 'CourseInfo: Title', 'Python'
> put 'UC2b', '2', 'CourseInfo: Intro', 'Deep Learning'
> put 'UC2b', '2', 'CourseInfo: Teacher', 'Lee'
> put 'UC2b', '3', 'CourseInfo: Title', 'Big Data'
> put 'UC2b', '3', 'CourseInfo: Intro', 'Hadoop and spark'
> put 'UC2b', '3', 'CourseInfo: Teacher', 'Mayanka'

```

```

put 'UC2b', '1', 'Students: Stu1','Walter'
put 'UC2b', '1', 'Students: Stu2', 'Vinay'
put 'UC2b', '1', 'Students: Stu3', 'Pragathi'
put 'UC2b', '2', 'Students: Stu1','Srilu'
put 'UC2b', '2', 'Students: Stu2', 'Sanjana'
put 'UC2b', '2', 'Students: Stu3', 'Pranoop'
put 'UC2b', '3', 'Students: Stu1','Lalitha'
put 'UC2b', '3', 'Students: Stu2', 'Vinay'
put 'UC2b', '3', 'Students: Stu3', 'Sridevi'

```

```

scan 'UC2b'
count 'UC2b'
get 'UC2b','2'

```

Output Screenshots:

```
sridevi@sridevi-VirtualBox:~$ hbase(main):039:0> put 'Table2b', '1', 'CourseInfo:Teacher', 'Deep Medhi'
0 row(s) in 0.0230 seconds

hbase(main):040:0> put 'Table2b', '2', 'CourseInfo:Title', 'Python'
0 row(s) in 0.0320 seconds

hbase(main):041:0> put 'Table2b', '2', 'CourseInfo:Intro', 'Deep Learning'
0 row(s) in 0.0280 seconds

hbase(main):042:0> put 'Table2b', '2', 'CourseInfo:Teacher', 'Lee'
0 row(s) in 0.0510 seconds

hbase(main):043:0> put 'Table2b', '3', 'CourseInfo:Title', 'Big Data'
0 row(s) in 0.0340 seconds

hbase(main):044:0> put 'Table2b', '3', 'CourseInfo:Intro', 'Hadoop and spark'
0 row(s) in 0.0340 seconds

hbase(main):045:0> put 'Table2b', '3', 'CourseInfo:Teacher', 'Lee'
0 row(s) in 0.0360 seconds

hbase(main):046:0> put 'Table2b', '1', 'Student:Stu1', 'Sridevi'
0 row(s) in 0.0250 seconds

hbase(main):047:0> put 'Table2b', '1', 'Student:Stu2', 'Vardhini'
0 row(s) in 0.0740 seconds

hbase(main):048:0> put 'Table2b', '1', 'Student:Stu3', 'Pragathi'
0 row(s) in 0.0410 seconds

hbase(main):049:0> put 'Table2b', '2', 'Student:Stu1', 'Srilu'
0 row(s) in 0.0220 seconds

hbase(main):050:0> put 'Table2b', '2', 'Student:Stu2', 'Sanjana'
0 row(s) in 0.1380 seconds

hbase(main):051:0> put 'Table2b', '2', 'Student:Stu3', 'Pranoop'
0 row(s) in 0.0560 seconds

hbase(main):052:0> put 'Table2b', '3', 'Student:Stu1', 'Lalitha'
0 row(s) in 0.0360 seconds

hbase(main):053:0> put 'Table2b', '3', 'Student:Stu2', 'Vardhini'
0 row(s) in 0.0340 seconds

hbase(main):054:0> put 'Table2b', '3', 'Student:Stu3', 'Sridevi'
0 row(s) in 0.0190 seconds

hbase(main):055:0>
```

```
sridevi@sridevi-VirtualBox:~$ hbase(main):051:0> put 'Table2b', '2', 'Student:Stu3', 'Pranoop'
0 row(s) in 0.0560 seconds

hbase(main):052:0> put 'Table2b', '3', 'Student:Stu1', 'Lalitha'
0 row(s) in 0.0360 seconds

hbase(main):053:0> put 'Table2b', '3', 'Student:Stu2', 'Vardhini'
0 row(s) in 0.0340 seconds

hbase(main):054:0> put 'Table2b', '3', 'Student:Stu3', 'Sridevi'
0 row(s) in 0.0190 seconds

hbase(main):055:0> scan 'Table2b'

ROW                                COLUMN+CELL
1                                     column=CourseInfo:Intro, timestamp=152926095628, value=Statistical Learning
1                                     column=CourseInfo:Teacher, timestamp=1529266128679, value=Deep Medhi
1                                     column=CourseInfo:Title, timestamp=1529266075851, value=ISL
1                                     column=Student:Stu1, timestamp=1529266270726, value=Sridevi
1                                     column=Student:Stu2, timestamp=1529266322743, value=Vardhini
1                                     column=Student:Stu3, timestamp=1529266333692, value=Pragathi
2                                     column=CourseInfo:Intro, timestamp=1529266146601, value=Deep Learning
2                                     column=CourseInfo:Teacher, timestamp=1529266158502, value=Lee
2                                     column=CourseInfo:Title, timestamp=1529266134997, value=Python
2                                     column=Student:Stu1, timestamp=1529266467897, value=Srlu
2                                     column=Student:Stu2, timestamp=1529266492860, value=Sanjana
2                                     column=Student:Stu3, timestamp=1529266547972, value=Pranoop
3                                     column=CourseInfo:Intro, timestamp=1529266185681, value=Hadoop and spark
3                                     column=CourseInfo:Teacher, timestamp=1529266195680, value=Lee
3                                     column=CourseInfo:Title, timestamp=1529266175066, value=Big Data
3                                     column=Student:Stu1, timestamp=1529266580743, value=Lalitha
3                                     column=Student:Stu2, timestamp=1529266623397, value=Vardhini
3                                     column=Student:Stu3, timestamp=1529266655139, value=Sridevi
3 row(s) in 0.2300 seconds

hbase(main):056:0> count 'Table2b'
3 row(s) in 0.0730 seconds

hbase(main):057:0> get 'Table2b','2'

COLUMN                                CELL
CourseInfo:Intro                      timestamp=1529266146601, value=Deep Learning
CourseInfo:Teacher                    timestamp=1529266158502, value=Lee
CourseInfo:Title                      timestamp=1529266134997, value=Python
Student:Stu1                         timestamp=1529266467897, value=Srlu
Student:Stu2                         timestamp=1529266492860, value=Sanjana
Student:Stu3                         timestamp=1529266547972, value=Pranoop
6 row(s) in 0.0360 seconds

hbase(main):058:0>
```

USECASE -3

Creating a table with name UC3 and adding a column family UserDetails and EventDetails

create 'UC3','UserDetails','EventDetails'

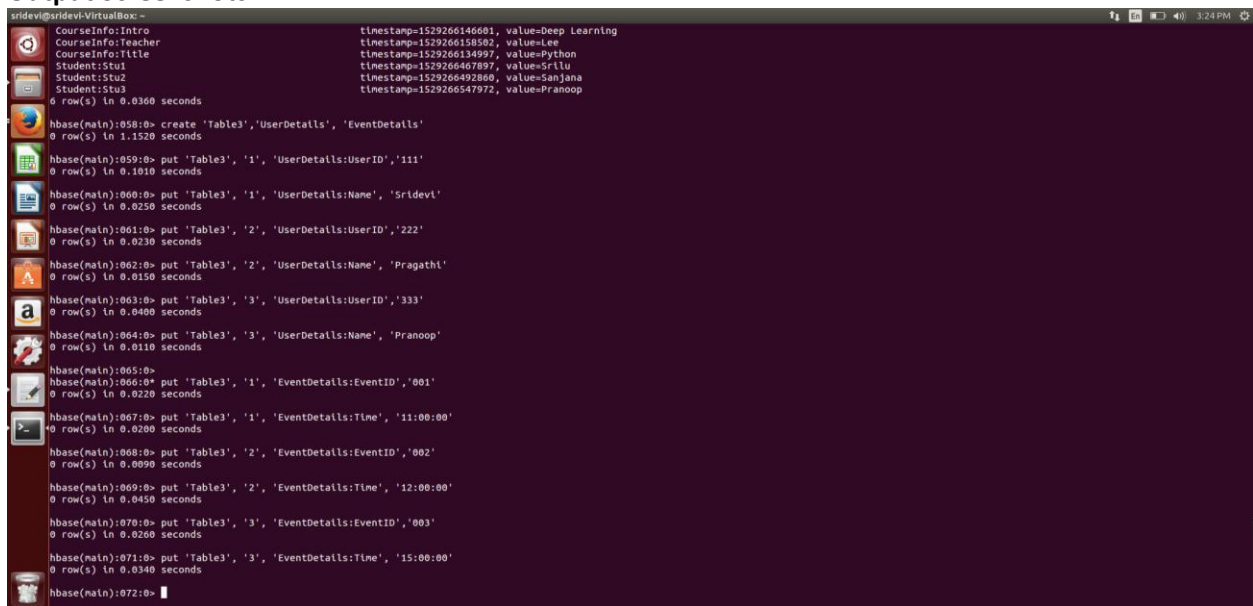
> put 'UC3','1','UserDetails:UserID','8'

```
> put 'UC3', '1', 'UserDetails:Name', 'Walter'
> put 'UC3', '2', 'UserDetails:UserID', '23'
> put 'UC3', '2', 'UserDetails:Name', 'Ashish'
> put 'UC3', '3', 'UserDetails:UserID', '14'
> put 'UC3', '3', 'UserDetails:Name', 'Pranoop'
```

```
> put 'UC3', '1', 'EventDetails:EventID', '001'
> put 'UC3', '1', 'EventDetails:Time', '11:00:00'
> put 'UC3', '2', 'EventDetails:EventID', '002'
> put 'UC3', '2', 'EventDetails:Time', '12:00:00'
> put 'UC3', '3', 'EventDetails:EventID', '003'
> put 'UC3', '3', 'EventDetails:Time', '15:00:00'
```

```
scan 'UC3'
count 'UC3'
get 'UC3','2'
```

Output Screenshots:



```
sridevi@sridevi-VirtualBox:~$ hbase(main):000:0> create 'Table3', 'UserDetails', 'EventDetails'
0 row(s) in 1.1520 seconds

hbase(main):001:0> put 'Table3', '1', 'UserDetails:UserID', '111'
0 row(s) in 0.1010 seconds

hbase(main):002:0> put 'Table3', '1', 'UserDetails:Name', 'Sridevi'
0 row(s) in 0.0250 seconds

hbase(main):003:0> put 'Table3', '2', 'UserDetails:UserID', '222'
0 row(s) in 0.0230 seconds

hbase(main):004:0> put 'Table3', '2', 'UserDetails:Name', 'Pragathi'
0 row(s) in 0.0150 seconds

hbase(main):005:0> put 'Table3', '3', 'UserDetails:UserID', '333'
0 row(s) in 0.0400 seconds

hbase(main):006:0> put 'Table3', '3', 'UserDetails:Name', 'Pranoop'
0 row(s) in 0.0110 seconds

hbase(main):007:0> put 'Table3', '1', 'EventDetails:EventID', '001'
0 row(s) in 0.0220 seconds

hbase(main):008:0> put 'Table3', '1', 'EventDetails:Time', '11:00:00'
0 row(s) in 0.0200 seconds

hbase(main):009:0> put 'Table3', '2', 'EventDetails:EventID', '002'
0 row(s) in 0.0090 seconds

hbase(main):010:0> put 'Table3', '2', 'EventDetails:Time', '12:00:00'
0 row(s) in 0.0450 seconds

hbase(main):011:0> put 'Table3', '3', 'EventDetails:EventID', '003'
0 row(s) in 0.0260 seconds

hbase(main):012:0> put 'Table3', '3', 'EventDetails:Time', '15:00:00'
0 row(s) in 0.0340 seconds

hbase(main):013:0>
```

```

sridevi@sridevi-VirtualBox:~$ hbase(main):070:0> put 'Table3', '3', 'EventDetails:EventID', '003'
0 row(s) in 0.0450 seconds

hbase(main):071:0> put 'Table3', '3', 'EventDetails:Time', '15:00:00'
0 row(s) in 0.0340 seconds

hbase(main):072:0> Scan 'Table3'
NoMethodError: undefined method 'Scan' for #<Object:0x291373d3>

hbase(main):073:0> scan 'Table3'
ROW
1
1
1
2
2
2
3
3
3
3
COLUMN=CELL
column=EventDetails:EventID, timestamp=1529267010207, value=001
column=EventDetails:Time, timestamp=1529267022128, value=11:00:00
column=UserDetails:Name, timestamp=1529266949077, value=Sridevi
column=UserDetails:UserID, timestamp=1529266938030, value=111
column=EventDetails:EventID, timestamp=1529267032357, value=002
column=EventDetails:Time, timestamp=1529267041981, value=12:00:00
column=UserDetails:Name, timestamp=1529266971258, value=Pragathi
column=UserDetails:UserID, timestamp=1529266959817, value=222
column=EventDetails:EventID, timestamp=1529267053027, value=003
column=EventDetails:Time, timestamp=1529267073250, value=15:00:00
column=UserDetails:Name, timestamp=1529266996559, value=Pranoop
column=UserDetails:UserID, timestamp=1529266980759, value=333
3 row(s) in 0.0640 seconds

hbase(main):074:0> count 'Table3'
hbase(main):075:0> count 'Table3'
hbase(main):076:0>
hbase(main):077:0> >
hbase(main):078:0> sridevi@sridevi-VirtualBox:~$ hbase shell
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 0.94.0, r1485467, Wed May 22 20:53:13 UTC 2013

hbase(main):001:0> count 'Table3'
3 row(s) in 1.0400 seconds

hbase(main):002:0> get 'Table3', '2'
COLUMN
EventDetails:EventID
EventDetails:Time
UserDetails:Name
UserDetails:UserID
CELL
timestamp=1529267032357, value=002
timestamp=1529267041981, value=12:00:00
timestamp=1529266971258, value=Pragathi
timestamp=1529266959817, value=222
4 row(s) in 0.1010 seconds

hbase(main):003:0>

```

USECASE-4

Creating a table with name UC3 and adding a column family User and Friends

create 'UC4','User', 'Friends'

```

> put 'UC4', '1', 'User:UserID', '8'
> put 'UC4', '1', 'User:Name', 'Walter'
> put 'UC4', '2', 'User:UserID', '23'
> put 'UC4', '2', 'User:Name', 'Praveen'
> put 'UC4', '3', 'User:UserID', '14'
> put 'UC4', '3', 'User:Name', 'Pranoop'

```

```

> put 'UC4', '1', 'Friends:ID', '001'
> put 'UC4', '1', 'Friends:Name', 'Ashu'
> put 'UC4', '2', 'Friends:ID', '002'
> put 'UC4', '2', 'Friends:Name', 'Vinay'
> put 'UC4', '3', 'Friends:ID', '003'
> put 'UC4', '3', 'Friends:Name', 'Tanmayee'

```

```

scan 'UC4'
count 'UC4'
get 'UC4', '2'

```

Output Screenshots:

```
sridevi@sridevi-VirtualBox: ~
COLUMN                                CELL
EventDetails:EventID                 timestamp=1529267032357, value=002
EventDetails:Time                     timestamp=1529267041981, value=12:00:00
UserDetails:Name                     timestamp=1529266971258, value=Pragathi
UserDetails:UserID                    timestamp=1529266959817, value=222
4 row(s) in 0.1610 seconds

hbase(main):003:0> create 'Table4','User','Friends'
0 row(s) in 1.5570 seconds

hbase(main):004:0> put 'Table4','1','User:UserID','111'
0 row(s) in 0.0720 seconds

hbase(main):005:0> put 'Table4','1','User:Name','Sridevi'
0 row(s) in 0.0520 seconds

hbase(main):006:0> put 'Table4','2','User:UserID','222'
0 row(s) in 0.0440 seconds

hbase(main):007:0> put 'Table4','2','User:Name','Pragathi'
0 row(s) in 0.0210 seconds

hbase(main):008:0> put 'Table4','3','User:UserID','333'
0 row(s) in 0.0230 seconds

hbase(main):009:0> put 'Table4','3','User:Name','Pranoop'
0 row(s) in 0.0140 seconds

hbase(main):010:0>
hbase(main):011:0> put 'Table4','1','Friends:ID','001'
0 row(s) in 0.0280 seconds

hbase(main):012:0> put 'Table4','1','Friends:Name','Srllu'
0 row(s) in 0.0310 seconds

hbase(main):013:0> put 'Table4','2','Friends:ID','002'
0 row(s) in 0.0160 seconds

hbase(main):014:0> put 'Table4','2','Friends:Name','Lalitha'
0 row(s) in 0.0390 seconds

hbase(main):015:0> put 'Table4','3','Friends:ID','003'
0 row(s) in 0.0150 seconds

hbase(main):016:0> put 'Table4','3','Friends:Name','vardhini'
0 row(s) in 0.0210 seconds

hbase(main):017:0>
hbase(main):018:0>
```

```
sridevi@sridevi-VirtualBox: ~
hbase(main):010:0>
hbase(main):011:0> put 'Table4','1','Friends:ID','001'
0 row(s) in 0.0280 seconds

hbase(main):012:0> put 'Table4','1','Friends:Name','Srllu'
0 row(s) in 0.0310 seconds

hbase(main):013:0> put 'Table4','2','Friends:ID','002'
0 row(s) in 0.0160 seconds

hbase(main):014:0> put 'Table4','2','Friends:Name','Lalitha'
0 row(s) in 0.0390 seconds

hbase(main):015:0> put 'Table4','3','Friends:ID','003'
0 row(s) in 0.0150 seconds

hbase(main):016:0> put 'Table4','3','Friends:Name','vardhini'
0 row(s) in 0.0210 seconds

hbase(main):017:0>
hbase(main):018:0> scan 'Table4'

COLUMN=CELL
1 column=Friends:ID, timestamp=1529267574684, value=001
1 column=Friends:Name, timestamp=1529267583937, value=Srllu
1 column=User:Name, timestamp=1529267514457, value=Sridevi
1 column=User:UserID, timestamp=1529267504319, value=111
2 column=Friends:ID, timestamp=1529267592989, value=002
2 column=Friends:Name, timestamp=1529267604568, value=Lalitha
2 column=User:Name, timestamp=1529267538042, value=Pragathi
2 column=User:UserID, timestamp=1529267526804, value=222
3 column=Friends:ID, timestamp=1529267613542, value=003
3 column=Friends:Name, timestamp=1529267622048, value=vardhini
3 column=User:Name, timestamp=1529267561594, value=Pranoop
3 column=User:UserID, timestamp=1529267550407, value=333
3 row(s) in 0.1530 seconds

hbase(main):019:0> count 'Table4'
3 row(s) in 0.0250 seconds

hbase(main):020:0> get 'Table4','2'

COLUMN                                CELL
Friends:ID                             timestamp=1529267592989, value=002
Friends:Name                           timestamp=1529267604568, value=Lalitha
User:Name                              timestamp=1529267538042, value=Pragathi
User:UserID                            timestamp=1529267526804, value=222
4 row(s) in 0.0650 seconds

hbase(main):021:0>
```

USECASE-5

Creating a table with name UC5 and adding a column family http and User

create 'UC5','http','User'

> put 'UC5','1','http:IP','11.111.11.1'

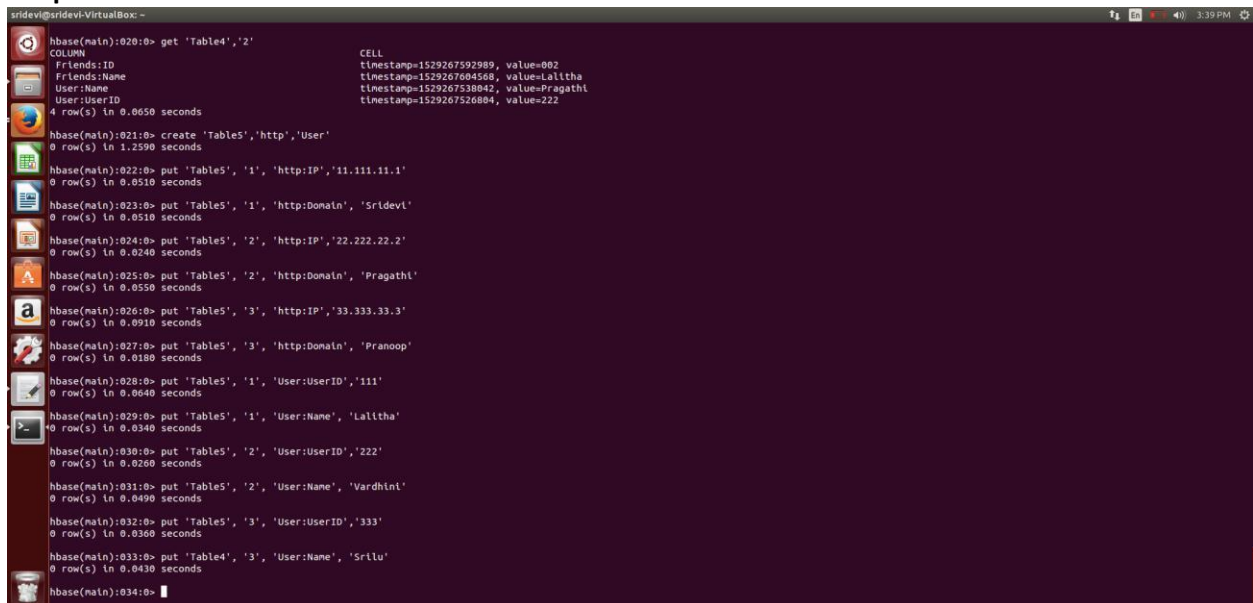
> put 'UC5','1','http:Domain','Sri'

```
> put 'UC5', '2', 'http:IP','22.222.22.2'  
> put 'UC5', '2', 'http:Domain', 'Praneeth'  
> put 'UC5', '3', 'http:IP','33.333.33.3'  
> put 'UC5', '3', 'http:Domain', 'Pranoop'
```

```
> put 'UC5', '1', 'User:UserID','11'  
> put 'UC5', '1', 'User:Name', 'Lalli'  
> put 'UC5', '2', 'User:UserID','22'  
> put 'UC5', '2', 'User:Name', 'Varsh'  
> put 'UC5', '3', 'User:UserID','33'  
> put 'UC4', '3', 'User:Name', 'Srilekha'
```

```
scan 'UC5'  
count 'UC5'  
get 'UC5','2'
```

Output Screenshots:



```
sridevi@sridevi-VirtualBox: ~  
hbase(main):020:0> get 'Table4','2'  
COLUMN                                CELL  
Friends:ID                            timestamp=1529267592989, value=002  
Friends:Name                          timestamp=1529267604568, value=Lallitha  
User:Name                             timestamp=1529267538042, value=Pragathi  
User:UserID                           timestamp=1529267526884, value=222  
4 row(s) in 0.0650 seconds  
hbase(main):021:0> create 'Tables','http','User'  
0 row(s) in 1.2590 seconds  
hbase(main):022:0> put 'Tables', '1', 'http:IP','11.111.11.1'  
0 row(s) in 0.0510 seconds  
hbase(main):023:0> put 'Tables', '1', 'http:Domain', 'Sridevi'  
0 row(s) in 0.0510 seconds  
hbase(main):024:0> put 'Tables', '2', 'http:IP','22.222.22.2'  
0 row(s) in 0.0240 seconds  
hbase(main):025:0> put 'Tables', '2', 'http:Domain', 'Pragathi'  
0 row(s) in 0.0550 seconds  
hbase(main):026:0> put 'Tables', '3', 'http:IP','33.333.33.3'  
0 row(s) in 0.0910 seconds  
hbase(main):027:0> put 'Tables', '3', 'http:Domain', 'Pranoop'  
0 row(s) in 0.0180 seconds  
hbase(main):028:0> put 'Tables', '1', 'User:UserID','111'  
0 row(s) in 0.0040 seconds  
hbase(main):029:0> put 'Tables', '1', 'User:Name', 'Lallitha'  
0 row(s) in 0.0340 seconds  
hbase(main):030:0> put 'Tables', '2', 'User:UserID','222'  
0 row(s) in 0.0260 seconds  
hbase(main):031:0> put 'Tables', '2', 'User:Name', 'Vardhini'  
0 row(s) in 0.0490 seconds  
hbase(main):032:0> put 'Tables', '3', 'User:UserID','333'  
0 row(s) in 0.0360 seconds  
hbase(main):033:0> put 'Table4', '3', 'User:Name', 'Srilu'  
0 row(s) in 0.0430 seconds  
hbase(main):034:0>
```



```
sridevi@sridevi-VirtualBox:~$ hbase(main):027:0> put 'Tables', '3', 'http:Domain', 'Pranoop'
0 row(s) in 0.0180 seconds

hbase(main):028:0> put 'Tables', '1', 'User:UserID', '111'
0 row(s) in 0.0640 seconds

hbase(main):029:0> put 'Tables', '1', 'User:Name', 'Lalitha'
0 row(s) in 0.0340 seconds

hbase(main):030:0> put 'Tables', '2', 'User:UserID', '222'
0 row(s) in 0.0260 seconds

hbase(main):031:0> put 'Tables', '2', 'User:Name', 'Vardhini'
0 row(s) in 0.0490 seconds

hbase(main):032:0> put 'Tables', '3', 'User:UserID', '333'
0 row(s) in 0.0360 seconds

hbase(main):033:0> put 'Table4', '3', 'User:Name', 'Srili'
0 row(s) in 0.0430 seconds

hbase(main):034:0> scan 'Tables'
ROW                                COLUMN=CELL
1                                column=User:Name, timestamp=1529267933373, value=Lalitha
1                                column=User:UserID, timestamp=1529267920914, value=111
1                                column=http:Domain, timestamp=1529267872873, value=Sridevi
2                                column=http:IP, timestamp=1529267863618, value=11.111.11.1
2                                column=User:Name, timestamp=1529267955252, value=Vardhini
2                                column=User:UserID, timestamp=1529267944586, value=222
2                                column=http:Domain, timestamp=1529267891996, value=Pragathi
3                                column=http:IP, timestamp=1529267882729, value=22.222.22.2
3                                column=User:UserID, timestamp=1529267974617, value=333
3                                column=http:Domain, timestamp=1529267910822, value=Pranoop
3                                column=http:IP, timestamp=1529267906614, value=33.333.33.3
3 row(s) in 0.1930 seconds

hbase(main):035:0> count 'Tables'
3 row(s) in 0.0550 seconds

hbase(main):036:0> get 'Tables', '2'
COLUMN                                CELL
User:Name                                timestamp=1529267955252, value=Vardhini
User:UserID                                timestamp=1529267944586, value=222
http:Domain                                timestamp=1529267891996, value=Pragathi
http:IP                                timestamp=1529267882729, value=22.222.22.2
4 row(s) in 0.0570 seconds

hbase(main):037:0>
```

Question 2:

a. General HBase shell commands

hbase> status

hbase> status 'simple'

hbase> status 'summary'

hbase> status 'detailed'

hbase> version

hbase> whoami

Output Screenshots:

```
sridevi@srdevi-VirtualBox:~$ hbase(main):037:0> status
1 servers, 0 dead, 9.0000 average load

hbase(main):038:0> status 'simple'
1 live servers
localhost:46537 1529262416558
requestsPerSecond=0, numberOfOnlineRegions=9, usedHeapMB=64, maxHeapMB=991
0 dead servers
Aggregate load: 0, regions: 9

hbase(main):039:0> status 'summary'
1 servers, 0 dead, 9.0000 average load

hbase(main):040:0> status 'detailed'
version 0.94.0
0 regionsInTransition
master coprocessors: []
1 live servers
localhost:46537 1529262416558
requestsPerSecond=0, numberOfOnlineRegions=9, usedHeapMB=65, maxHeapMB=991
-ROOT-,..0
numberOfStores=1, numberOfStorefiles=2, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=36, writeRequestsCount=1, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
-META-,..1
numberOfStores=1, numberOfStorefiles=1, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=87, writeRequestsCount=18, rootIndexSizeKB=0
Table01,1529264834873.f8e4d4a4e5679f9b065c089bd1e09d7
numberOfStores=1, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=9, rootIndexSizeKB=0
Table02,1529265385344.687e3b65e363b8805fb33942fcd2a
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=15, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table03,1529266059211.50d41e194e028c32a914e41f7dae1
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=18, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table04,1529267288609.08d396c26f33abed42d544090cb7859
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=12, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table05,1529267853853.d7c5bc192dc8dc58c853f4c965351536
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=13, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table06,1529267853853.d7c5bc192dc8dc58c853f4c965351536
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=11, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
test,1529262520225.8e56d24b990bce0b1d2d06d1053ca
numberOfStores=1, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=0, writeRequestsCount=0, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
0 dead servers
Aggregate load: 0, regions: 9

hbase(main):039:0> status 'summary'
1 servers, 0 dead, 9.0000 average load

hbase(main):040:0> status 'detailed'
version 0.94.0
0 regionsInTransition
master coprocessors: []
1 live servers
localhost:46537 1529262416558
requestsPerSecond=0, numberOfOnlineRegions=9, usedHeapMB=65, maxHeapMB=991
-ROOT-,..0
numberOfStores=1, numberOfStorefiles=2, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=36, writeRequestsCount=1, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
-META-,..1
numberOfStores=1, numberOfStorefiles=1, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=87, writeRequestsCount=18, rootIndexSizeKB=0
Table01,1529264834873.f8e4d4a4e5679f9b065c089bd1e09d7
numberOfStores=1, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=9, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table02,1529265385344.687e3b65e363b8805fb33942fcd2a
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=15, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table03,1529266059211.50d41e194e028c32a914e41f7dae1
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=18, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table04,1529267288609.08d396c26f33abed42d544090cb7859
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=12, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table05,1529267853853.d7c5bc192dc8dc58c853f4c965351536
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=13, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
Table06,1529267853853.d7c5bc192dc8dc58c853f4c965351536
numberOfStores=2, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=5, writeRequestsCount=11, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
test,1529262520225.8e56d24b990bce0b1d2d06d1053ca
numberOfStores=1, numberOfStorefiles=0, storefileUncompressedSizeMB=0, storefileSizeMB=0, memstoreSizeMB=0, storefileIndexSizeMB=0, readRequestsCount=0, writeRequestsCount=0, rootIndexSizeKB=0
totalStaticIndexSizeKB=0, totalStaticBloomSizeKB=0, totalCompactingKVs=0, currentCompactedKVs=0, compactionProgressPct=NaN
0 dead servers

hbase(main):041:0> version
0.94.0, r1485407, Wed May 22 20:53:13 UTC 2013

hbase(main):042:0> whoami
srdevi

hbase(main):043:0>
```

b. Tables Management commands

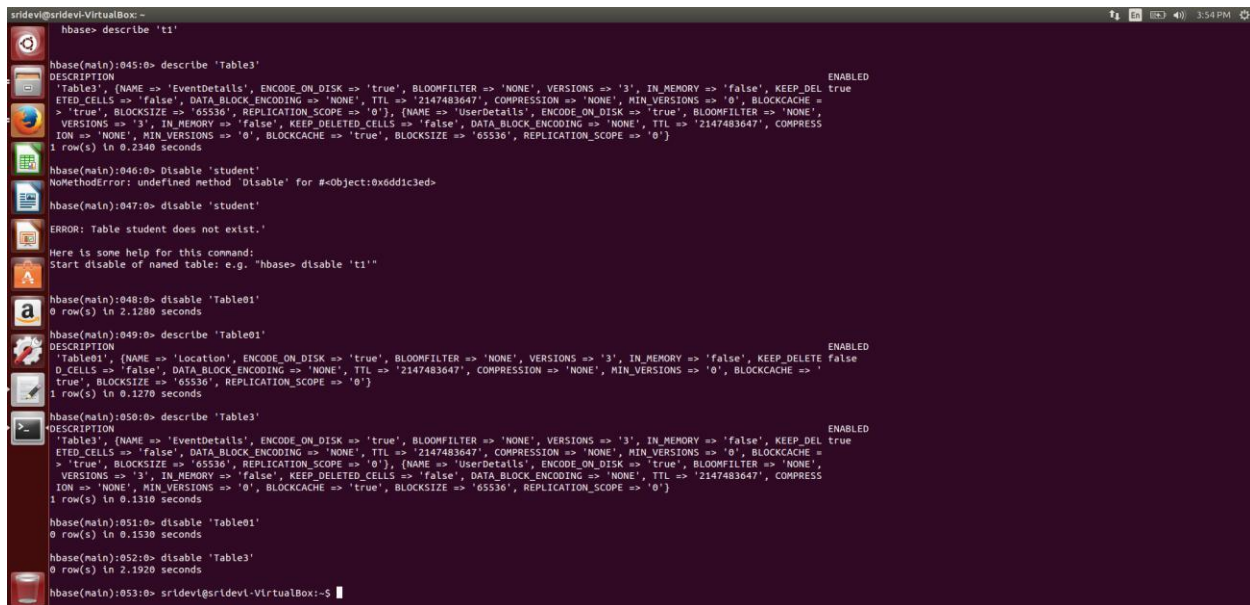
describe 'UC1'

describe 'UC3'

disable 'UC1'

disable 'UC3'

Output Screenshots:



```
sridevi@sridevi-VirtualBox:~$ hbase> describe 't1'
hbase(main):045:0> describe 'Table3'
DESCRIPTION
'Table3', (NAME => 'EventDetails', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE', VERSIONS => '3', IN_MEMORY => 'false', KEEP_DEL true
ETD_CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESSION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE =>
> 'true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0'), (NAME => 'UserDetails', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE',
VERSIONS => '3', IN_MEMORY => 'false', KEEP_DELETED_CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESS
ION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0')
1 row(s) in 0.2340 seconds

hbase(main):046:0> Disable 'student'
NoMethodError: undefined method 'Disable' for #<Object:0x6ddc3ed>

hbase(main):047:0> disable 'student'
ERROR: Table student does not exist.'

Here is some help for this command:
Start disable of named table: e.g. "hbase> disable 't1'"

hbase(main):048:0> disable 'Table01'
0 row(s) in 2.1280 seconds

hbase(main):049:0> describe 'Table01'
DESCRIPTION
'Table01', (NAME => 'Location', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE', VERSIONS => '3', IN_MEMORY => 'false', KEEP_DELETE false
O_CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESSION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE => '
true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0')
1 row(s) in 0.1270 seconds

hbase(main):050:0> describe 'Table3'
DESCRIPTION
'Table3', (NAME => 'EventDetails', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE', VERSIONS => '3', IN_MEMORY => 'false', KEEP_DEL true
ETD_CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESSION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE =>
> 'true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0'), (NAME => 'UserDetails', ENCODE_ON_DISK => 'true', BLOOMFILTER => 'NONE',
VERSIONS => '3', IN_MEMORY => 'false', KEEP_DELETED_CELLS => 'false', DATA_BLOCK_ENCODING => 'NONE', TTL => '2147483647', COMPRESS
ION => 'NONE', MIN_VERSIONS => '0', BLOCKCACHE => 'true', BLOCKSIZE => '65536', REPLICATION_SCOPE => '0')
1 row(s) in 0.1310 seconds

hbase(main):051:0> disable 'Table01'
0 row(s) in 0.1530 seconds

hbase(main):052:0> disable 'Table3'
0 row(s) in 2.1920 seconds

hbase(main):053:0> sridevi@sridevi-VirtualBox:~$
```

c. Data Manipulation commands

count 'UC1'

count 'UC3'

get 'UC1', 'Vinay'

get 'UC3', 'Pranoop'

Output Screenshots:

```
sridevi@sridevi-VirtualBox -
hbase(main):052:0> disable 'Table3'
0 row(s) in 2.1920 seconds
hbase(main):053:0> sridevi@sridevi-VirtualBox:~$ hbase shell
^Csridevi@sridevi-VirtualBox:~$ hbase shell
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type 'exit<RETURN>' to leave the HBase Shell
Version 0.94.0, r1485467, Wed May 22 20:53:13 UTC 2013
hbase(main):001:0> count 'Table01'
ERROR: org.apache.hadoop.hbase.DoNotRetryIOException: Table01 is disabled.
Here is some help for this command:
Count the number of rows in a table. This operation may take a LONG
time (Run 'SHADOOP_HOME/bin/hadoop jar hbase.jar rowcount' to run a
counting mapreduce job). Current count is shown every 1000 rows by
default. Count interval may be optionally specified. Scan caching
is enabled on count scans by default. Default cache size is 10 rows.
If your rows are small in size, you may want to increase this
parameter. Examples:
hbase> count 't1'
hbase> count 't1', INTERVAL => 100000
hbase> count 't1', CACHE => 1000
hbase> count 't1', INTERVAL => 10, CACHE => 1000
hbase(main):002:0> count 'Table3'
ERROR: org.apache.hadoop.hbase.DoNotRetryIOException: Table3 is disabled.
Here is some help for this command:
Count the number of rows in a table. This operation may take a LONG
time (Run 'SHADOOP_HOME/bin/hadoop jar hbase.jar rowcount' to run a
counting mapreduce job). Current count is shown every 1000 rows by
default. Count interval may be optionally specified. Scan caching
is enabled on count scans by default. Default cache size is 10 rows.
If your rows are small in size, you may want to increase this
parameter. Examples:
hbase> count 't1'
hbase> count 't1', INTERVAL => 100000
hbase> count 't1', CACHE => 1000
hbase> count 't1', INTERVAL => 10, CACHE => 1000
```

```
sridevi@sridevi-VirtualBox -
hbase(main):003:0> get 'Table4', 'Sridevi'
COLUMN                                CELL
0 row(s) in 0.0620 seconds
hbase(main):004:0> get 'Table01', 'Sridevi'
COLUMN                                CELL
ERROR: org.apache.hadoop.hbase.DoNotRetryIOException: Table01 is disabled.
Here is some help for this command:
Get row or cell contents; pass table name, row, and optionally
a dictionary of column(s), timestamp, timestrange and versions. Examples:
hbase> get 't1', 'r1'
hbase> get 't1', 'r1', [TIMESRANGE => [ts1, ts2]]
hbase> get 't1', 'r1', [COLUMN => 'c1']
hbase> get 't1', 'r1', [COLUMN => ['c1', 'c2', 'c3']]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESTAMP => ts1]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESRANGE => [ts1, ts2], VERSIONS => 4]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESTAMP => ts1, VERSIONS => 4]
hbase> get 't1', 'r1', [FILTER => "ValueFilter(=, 'binary:abc')"]
hbase> get 't1', 'r1', 'c1'
hbase> get 't1', 'r1', 'c1', 'c2'
hbase> get 't1', 'r1', ['c1', 'c2']
hbase(main):005:0> get 'Table01', 'Pragathi'
COLUMN                                CELL
ERROR: org.apache.hadoop.hbase.DoNotRetryIOException: Table01 is disabled.
Here is some help for this command:
Get row or cell contents; pass table name, row, and optionally
a dictionary of column(s), timestamp, timestrange and versions. Examples:
hbase> get 't1', 'r1'
hbase> get 't1', 'r1', [TIMESRANGE => [ts1, ts2]]
hbase> get 't1', 'r1', [COLUMN => 'c1']
hbase> get 't1', 'r1', [COLUMN => ['c1', 'c2', 'c3']]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESTAMP => ts1]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESRANGE => [ts1, ts2], VERSIONS => 4]
hbase> get 't1', 'r1', [COLUMN => 'c1', TIMESTAMP => ts1, VERSIONS => 4]
hbase> get 't1', 'r1', [FILTER => "ValueFilter(=, 'binary:abc')"]
hbase> get 't1', 'r1', 'c1'
hbase> get 't1', 'r1', 'c1', 'c2'
hbase> get 't1', 'r1', ['c1', 'c2']
hbase(main):006:0>
```

d. HBase surgery tools

balancer

balance_switch true

balance_switch false

Output Screenshots:

```
srdevi@srdevi-VirtualBox:~$
at org.apache.hadoop.hbase.lpc.WritableRpcEngineServer.call(WritableRpcEngine.java:320)
at org.apache.hadoop.hbase.lpc.HBaseServerHandler.run(HBaseServer.java:1426)

Here is some help for this command:
Flush all regions in passed table or pass a region row to
flush an individual region. For example:

hbase> flush 'TABLENAME'
hbase> flush 'REGIONNAME'

hbase(main):008:0> balancer
true
0 row(s) in 0.0150 seconds

hbase(main):009:0> balance_switch true
true
0 row(s) in 0.0460 seconds

hbase(main):010:0> assign 'ICP4'
ERROR: org.apache.hadoop.lpc.RemoteException: org.apache.hadoop.hbase.UnknownRegionException: ICP4
at org.apache.hadoop.hbase.master.HMaster.assign(HMaster.java:1877)
at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
at java.lang.reflect.Method.invoke(Method.java:498)
at org.apache.hadoop.hbase.lpc.WritableRpcEngineServer.call(WritableRpcEngine.java:320)
at org.apache.hadoop.hbase.lpc.HBaseServerHandler.run(HBaseServer.java:1426)

Here is some help for this command:
Assign a region, use with caution. If region already assigned,
this command will just go ahead and reassign
the region anyways. For experts only.

hbase(main):011:0> balancer
true
0 row(s) in 0.0290 seconds

hbase(main):012:0> balance_switch true
true
0 row(s) in 0.0200 seconds

hbase(main):013:0> balance_switch false
true
0 row(s) in 0.0200 seconds

hbase(main):014:0>
```

Team Members:

Pranoop Mutha
Lozier Walter